Variation in the Leaves of Clematis Reticulata and Other Notes.

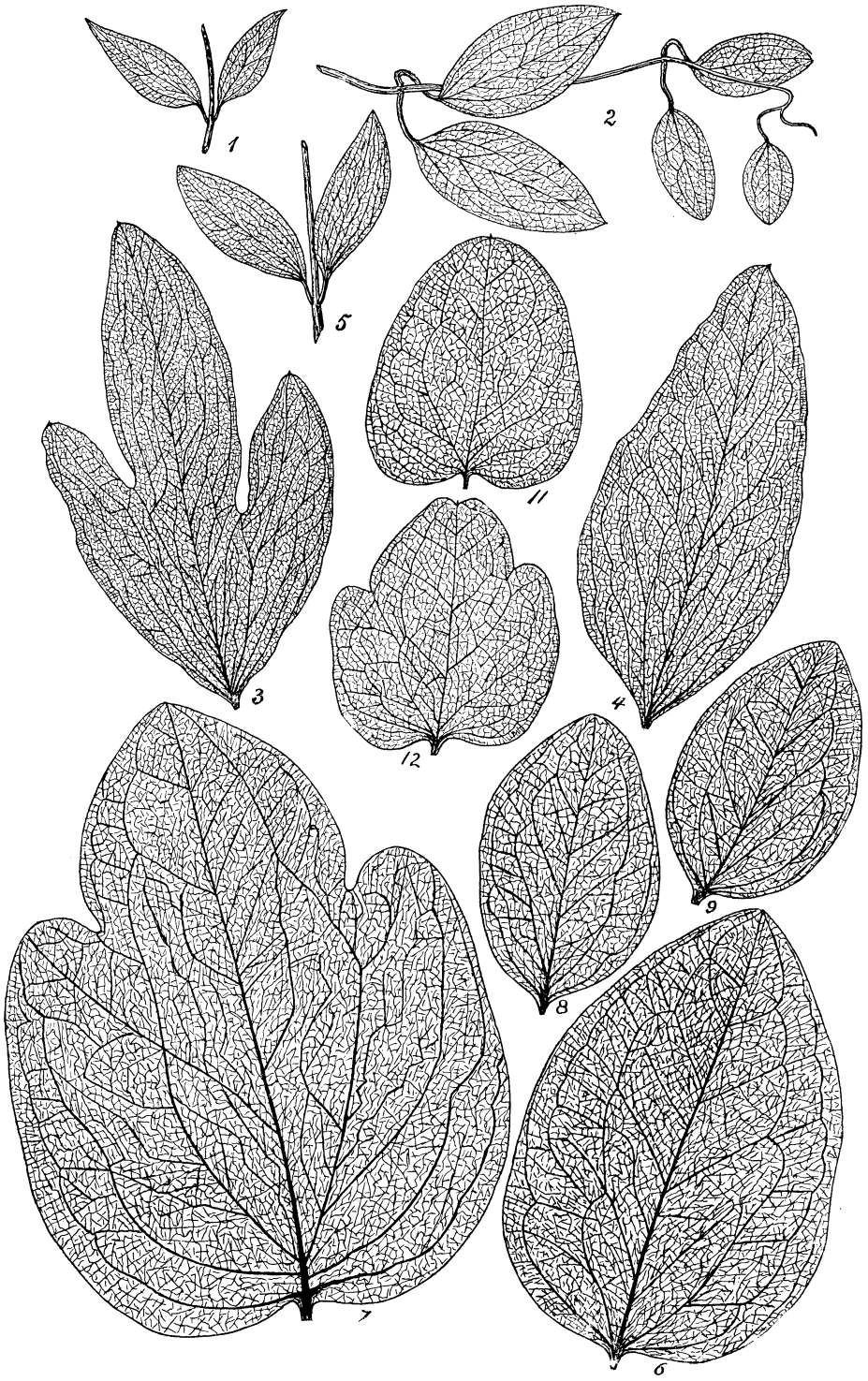
By Charles Mohr.

(Plate CXXXIII).

In Southern Alabama and on the eastern border of Central Mississippi, specimens of a *Clematis* have been collected, which in form and size of their leaves presented a habit so widely differing from the forms of *Clematis reticulata*, known to me at the time, from Florida and Texas, that I could not convince myself of the identity of the plants from the eastern Gulf region with that species. After having had, by the kindness of Dr. Geo. Vasey, opportunity for comparing them with the series of forms in the National Herbarium from the Southern Atlantic States and fro m Texas, all doubts on this point were dispelled. The variation in the size of the pinnate leaves, in the number of pinnæ, the size and shape of their leaflets exhibited by these plants from different localities, is very remarkable and of interest by their manifest connection with their geographical distribution.

The specimens from South Carolina and Georgia exhibit the most meager foliage, the leaves of a few pinnæ with the leaflets lanceolate to ovate-lanceolate and acute (Fig. 1 and 2). In the plants from Eastern Florida, the leaflets became more expanded, ovate forms and prevailing considerably longer than wide, more or less blunt with the tendency to palmate or digitate division, (Fig. 3 and 4), the simple leaves supporting the flower stalk remaining lanceolate and acute (Fig. 5). The plants from the eastern Gulf region show the greatest luxuriance in their foliage, the large leaves with from three to four and more pinnæ, bearing roundish to broadly ovate leaflets, but little longer than wide, blunt or emarginate and often slightly cordate at the base (Fig. 6and 7), the opposite simple leaves subtending the pedicels, ovate and obtuse (Fig. 8 and 9). The specimens from Eastern Texas present a foliage somewhat intermediate between the latter and the Florida plants (Fig. 11 to 12).

These variations in the leaf form are easily explained when the difference in the moisture conditions are considered, prevailing in distant localities during the period of most active growth. Sparsely-leaved forms, with more narrow and acute leaflets, to all appearances predominate in the Southern Atlantic region, with a



VARIATION IN THE LEAVES OF CLEMATIS RETICULATA. Charles Mohr.

rainfall averaging ten inches during the spring, and fifteen inches during the summer months.

In Alabama and Eastern Mississippi, with a precipitation on the average of fifteen and of twenty inches respectively during the same seasons, the foliage is rich and abundant with large, rounded leaflets, whereas the Texan specimens, from a region with a precipitation similar to that of Florida, during the same periods, approach in their foliage the plants from that section.

In view of these facts, the position I have taken in my remarks made before the Botanical Club of the American Association for the Advancement of Science, at the Washington meeting in 1891, in regard to the specific character of the specimens of *Clematis* from the Eastern Gulf States has to be abandoned.

As worthy of record I would allude to the occurrence of *Quercus heterophylla* in Alabama. This tree, unknown to me, was pointed out by my companion, Mr. Sudworth, in our explorations of the forests of the southern banks of the Tennessee River in Morgan County. In all its characters, the tree presented not the slightest deviation from the forms found on the Atlantic slope. From the abundance of cups scattered below the tree, it is evident that it fruits freely and, as in other localities cited, it is found associated with *Quercus Phellos* and *Q. rubra.* This association, however, cannot be taken as a proof of its being a hybrid; the constancy of its characters under varying conditions of soil and climate, and its fecundity are the strongest proof of its specific value.

Mr. Sudworth has found this tree near Ann Arbor, Michigan, extending thus its geographical range to over about eight degrees of latitude, and spreading from the coast far into the interior.

The Rediscovery of Juncus Cooperi.

In the year 1868 Dr. George Engelmann published a description of a new *Juncus* from the southwestern United States, giving it the name *J. Cooperi.** A single specimen without rootstock or leaves had been collected by Dr. J. G. Cooper in 1861, in the vicinity of Camp Cady, a now abandoned military post situated

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